



**North Slope of Alaska ARM Facilities
Monthly Status Update
Sandia National Labs**

November 2017

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1 North Slope Facilities Management Executive Summary and Major Issues

This monthly report is intended to communicate the status of North Slope ARM facilities managed by Sandia National Labs.

Operations Team

- * Mark Ivey- ARM Alaska Sites Manager (SNL)
- * Fred Helsel- AMF3 Site Manager (SNL)
- * Dan Lucero- Barrow Site Manager (SNL)
- * Darielle Dexheimer- Tethered Balloon Operations (SNL)
- * Valerie Sparks- ARM Project Office (SNL)
- * Martin Stuefer- Rapid Response Team (UAF)
- * Randy Peppler- ARM DQ Office Manager (OU)

2 Budget

FY2017 Financials (as of December 1, 2017)

	November	YTD
Carryover funds	\$5,078,053	
Funds Allocated YTD	\$1,500,000	
Carryover plus YTD funds	\$6,578,053	
Cost, burdened amount	\$1,226,571	
Uncosted Funds	\$5,351,482	
Commits, burdened total	\$2,317,044	
Current fiscal year uncommitted funds	\$3,034,438	
Subsequent fiscal year (SFY)commits	\$438,922	
Total uncommitted funds, including SFY commits	\$2,595,516	
Fully Burdened Staff Costs	\$334,000	
Fully Burdened Contract Costs	\$267,000	
Fully Burdened Total Costs	\$602,000	\$1,131,000

3 Safety

AMF3- No incident/Injury

Barrow - No Incident/Injury

4 Instrument Status – Provided by Martin Stuefer

AMF3

INFORMAL AMF3 INSTRUMENT STATUS REPORT FOR November 22 - December 01, 2017
BRIEF STATUS OF INSTRUMENTS and site IN OLIKTOK AS OF 2017/12/01:

Facilities	Operational
Data Systems	Operational
Vehicles	Operational
Desktop Computers	Operational
SKYRAD - SKY Radiometer on Stand for downwelling	Operational
MFRSR - Multifilter Rotating Shadowband Radiometer	Not Operational
GNDRAD - Ground Radiometer on Stand for Upwelling	Operational
MFR2.5m - Multifilter Radiometer at 2.5m height	Not Operational
MAWS - Automatic Weather Station	Partly Operational
MET - Surface & Tower Meteorological Instruments	Operational
CMH - Chilled Mirror Hygrometer	Operational
AMC - Soil, up/downwelling radiation measurements	Operational
ECOR - Eddy Correlation Flux System	Operational
MWR3C - Three Channel Microwave Radiometer	Operational
MPL - Micropulse Lidar	Operational
DL - Doppler Lidar	Operational
CEIL - Vaisala Ceilometer	Operational
KAZR - Ka ARM Zenith Radar	Operational as per warno.arm.gov
BBSS - Balloon Borne Sounding System	Operational
TSI - Total Sky Imager	Not Operational
AOS - Aerosol Observing System	Partly Operational
AOSMET - AOS Meteorological Measurements	Operational
CO - AOS Carbon Monoxide Analyzer	Operational
CPC - Condensation Particle Counter	Not Operational
CAPS - Cavity Attenuated Phase Shift Extinction Monitor	Not Operational
ACSM - Aerosol Chemical Speciation Monitor	Operational
HTD-MA - Humidified Tandem Differential Mobility Analyzer	Not Operational
GHG - PICARRO	Operational
NEPH - Nephelometer	Operational
PSAP - Particle Soot Absorption Photometer	Operational
UHSAS - Ultra-High Sensitivity Aerosol Spectrometer	Operational
IMPACTOR - AOS Impactor	Operational
OZONE - AOS Ozone	Operational
CCN - Cloud Condensation Nuclei Particle Counter	Not Operational
MASC - Multi Angle Snowflake Camera	Not Operational
PIP - Precipitation Imaging Package	Operational
LPM - Laser Precipitation Monitor	Operational

GEONOR - Geonor Weighing Gauge	Operational
SRS - Snow Depth Sensor	Operational
AERI - Atmospheric Emitted Radiance Interferometer	Operational
CIMEL - Cimel Sunphotometer	Not Operational
MET-AIR - DataHawk Unmanned Aerial System	Operational
TBS - Tethered Balloon System	Operational
IOP - MASC	Operational

 * Oliktok Instruments in Detail: *

INFRASTRUCTURE --- Facilities --- Operational.

2017/11/26, CM-2017-AMF3-VSN-2218: Preventative maintenance was required for the north 100kw generator, so technicians transferred power from the north generator to the south generator at 17:00 UTC.

2017/11/24, CM-2017-AMF3-VSN-2214: The lower left air handler fan failed in the AOS Arctic Entry, so the technician removed the fan and replaced it with a new one.

INFRASTRUCTURE --- Data Systems --- Operational.

2017/11/30, CM-2017-AMF3-VSN-2220: HDD S/N NA75FD6B was replaced with HDD S/N NA7Q2CCQ. Site ops will ship HDD S/N NA75FD6B via USPS tracking # 9114 9014 9645 0952 9754 71.

2017/11/28, CM-2017-AMF3-VSN-2219: HDD S/N NA76MEA3 was replaced with HDD S/N NA75FD6B. Site ops will ship HDD S/N NA76MEA3 via USPS tracking # 9114 9014 9645 0952 9754 71.

2017/11/25, CM-2017-AMF3-VSN-2216: HDD S/N NA7Q2CX0 was replaced with HDD S/N NA76MEA3. Site ops will ship HDD S/N NA7Q2CX0 via USPS tracking # 9114 9014 9645 0952 9754 57.

2017/11/23, CM-2017-AMF3-VSN-2212: HDD S/N NA7Q2CQ8 was replaced with HDD S/N NA7Q2CX0. Site ops will ship HDD S/N NA7Q2CQ8 via USPS tracking # 9114 9014 9645 0952 9754 57.

INFRASTRUCTURE --- Vehicles --- Operational.

INFRASTRUCTURE --- Desktop Computers --- Operational.

SKYRAD --- SKYRAD general --- Operational.

SKYRAD --- IRT --- Operational.

SKYRAD --- PIR 1 shaded --- Operational.

SKYRAD --- PIR 2 shaded --- Operational.

SKYRAD --- SOLAR Tracker --- Operational.

SKYRAD --- B&W diffuse --- Operational.

SKYRAD --- NIP --- Operational.

SKYRAD --- PSPg --- Operational.

SKYRAD --- MFRSR --- Not Operational. Removed for the Season, Currently Located at SGP for Calibration.

2017/11/11, DQPR-6657: MFRSR SN #199 was removed for winter calibration. It will be shipped to James Martin at SGP for calibration. FedEx tracking # 812187584198.

TIPTWR --- GNDRAD general --- Operational.

TIPTWR --- MFR2.5m --- Not Operational. Removed for the Season, Currently Located at SGP for Calibration.

TIPTWR --- PIRgnd --- Operational.

TIPTWR --- IRTgnd --- Operational.

TIPTWR --- PSPgnd --- Operational.

MAWS --- Automatic Weather Station --- Partly Operational.

2017/11/13, DQPR-6661: The aspirator motor on the T/RH probe failed. Replacements are being ordered. The most recent DQPR status is "waiting - for spares."

MET --- METTOWER general --- Operational.

MET --- CMH --- Operational.

2017/12/01, DQPR-6665: Adam Theisen doesn't see any other periods where data is flatlined, so he assigned Jenni Kyrouac DQR D171201.6. The most recent DQPR status is "in progress - assignments."

2017/11/14, DQPR-6665: Starting on 2017/11/03 at 15:35 UTC, CMH relative humidity is flatlined at 100% from 11/3 at 15:35 UTC until the end of the day on 11/4. This problem also occurred for a few periods later in the week. Adam asked Jenni if this was a continuation of DQPR 6477 and a problem stemming from ice formation.

MET --- Barometer --- Operational.

MET --- TEMPERATURE / HUMIDITY --- Operational.

MET --- WIND INSTRUMENTS (SONIC) --- Operational.

MET --- PWD --- Operational.

MET --- AMC --- Operational.

2017/11/03, DQPR-6208: ENG 3609 was submitted on 10/18 to correct the DOD. Yan Shi said on 10/30 that we are waiting for "MMT approval of the updated DOD." Once the approval is made and ingest starts using the new DOD, Andrew Moyes will submit the DQR to reprocess the data. The most recent DQPR status is "open - requires action."

2017/06/19, DQPR-6208: Ken will need to prepare and share data with the developer, and will ascertain the exact time ranges before submitting DQR (D170519.1).

2017/05/13, DQPR-6208: Data after 20150822 for this site does follow the current DOD. The mentor will submit reformatted raw data for the period of 2014/09/14 to 2015/08/31 for the a1 level and b1 ingest so that the entire data record is based on the same DOD. Ken Reichl has been assigned DQR D170519.1.

ECOR --- ECOR --- Operational.

ECOR --- SEBS --- Operational.

MW RADIOMETERS --- MWR3C --- Operational.

LIDAR --- MPL --- Operational.

LIDAR --- Doppler LIDAR --- Operational.

LIDAR --- CEIL --- Operational.

RADAR --- KAZR --- Operational as per warno.arm.gov.

2017/11/30, CM-2017-AMF3-VSN-2221: The KAZR radome was covered with approximately 1" of snow, so a technician cleared snow from the cover at 23:25 UTC.

2017/11/24, CM-2017-AMF3-VSN-2215/2217: The KAZR radiate light was found to be off at 16:28 UTC on 11/26, and at 20:25 UTC on 11/24. A technician logged in and executed the PASCI file. The radiate light illuminated at 16:29 UTC on 11/26 and at 20:26 UTC on 11/24.

Sonde --- BBSS --- Operational.

2017/11/24, CM-2017-AMF3-VSN-2213: Sonde telemetry and communication failed immediately following the 17:30 UTC balloon launch on 2017/11/24. Technicians terminated the launch and closed the sounding (sonde SN M2943056). Launches will resume this afternoon at 23:30 UTC.

2017/11/22, CM-2017-AMF3-VSN-2211: Technicians were unable to launch the 23:30 UTC balloon due to high wind conditions. Winds are >30 mph sustained. Launches will resume when weather conditions permit.

IMG --- TSI --- Not Operational.

2017/11/04, DQPR-6625/ CM-2017-AMF3-VSN-2181: Season removal of the TSI—S/N 109, Model # TSI-660, WD80426, ENG0003607. The software was stopped, power and heater switch turned off. Power, data, and ground wires were removed. The base plate hardware and unit were removed, the exterior wires were sealed in a plastic bag, the instrument was stored in its case, and placed in warm storage for the winter. The most recent DQPR status is "waiting - for spares."

AOS --- General --- Partly Operational, Some Instruments Shut Down for Winter.

2017/07/28, DQPR-5858: Unless there are objections from Cindy or the PRB, Joshua King proposes that we abandon this DQPR. The most recent DQPR status is "in progress - assignments."

2017/06/23, DQPR-5858: Richard Wagener asked if anyone has looked at the VM's clock. Could it be that the time lags behind, and then jumps (resyncs), creating gaps in the time record? Richard suggests adding an assignment to Brent to look into possible system level causes for this behavior. The most recent DQPR status is "in progress - assignments."

AOS --- AOSMET --- Operational.

AOS --- CO - Analyzer --- Operational.

AOS --- CPC --- Not Operational.

2017/12/01, DQPR-6698: The CPC 3772 was briefly sampling against an under-pressure value (< 20 kPa), likely leading to flooding of the instrument. The site operator was instructed to disconnect the butanol supply line to the CPC, and allow the instrument to run "dry" over the weekend in an attempt to "dry out" the instrument. The most recent DQPR status is "open - requires action."

AOS --- CAPS --- Not Operational, Instrument at BNL Due to Incorrect Data.

2017/11/22, DQPR-6680: Since 2017/08/29 at 22:07 UTC, the 1-um switch on the Impactor is not working when the Impactor goes to the 1 um position. So the 'read' signal is reporting 3 (indeterminate) in this position. We have verified that the Impactor is working correctly. The mentor was contacted and will work with Operations to fix the signal. This affects processing for PSAP, CAPS and Nephelometer. Mentor (Uin) should close this DQPR once fixed.

2017/08/07, DQPR-5816: The red channel should be usable once the mentor can look at the entire OLI dataset. Related to this issue, the mentor has been informed by the manufacturer that a fix to the ongoing problem with the 3W unit regarding the need for a PSL calibration is being finalized. This fix will require swapping out the 3 DAQ cards. New cards are currently being created by a third party for the manufacturer (Aerodyne). Given this, the OLI CAPS will remain at BNL until the three new cards can be installed. The most recent DQPR status is "in progress - assignments."

2017/07/27, DQPR-5816: From the raw data record, it looks like the CAPS was back in service on 2017/06/26. Joshua King asked Ken Burk if the ingests can be turned back on. Arthur Sedlacek has an assignment to write a DQR. The most recent DQPR status is "in progress - assignments."

2017/05/08, DQPR-5816: The OLI CAPS is at BNL, where one of the sample pumps was replaced, the 3- DAQ cards were mounted with screws, and optics were cleaned. The system is currently undergoing a performance test, and as part of this check, some irregularities (signal fluctuations) were observed. The mentor is in contact with the manufacturer. Once the signal fluctuations

are resolved, a PSL calibration will be performed prior to shipment back to OLI. This PSL calibration is necessary due to a firmware issue. While Aerodyne is testing a new card that corrects the issue, it is not yet ready for prime time. The most recent DQPR status is "in progress - assignments."

AOS --- ACSM --- Operational.

AOS --- GHG-Picarro --- Operational.

AOS --- HT-DMA --- Not Operational. Shut Down for Winter.

AOS --- UHSAS --- Operational.

2017/12/01, DQPR-6618: Adam Theisen asked Cindy/Janek if a secondary period (10/12-10/15) exists, or if this DQPR can this be closed out. The most recent DQPR status is "open - requires action."

2017/11/16, DQPR-6618: The DMF is waiting to receive data from Cindy/Janek for the secondary 10/12 - 10/15 period if they exist on the instrument. The most recent DQPR status is "open - requires action."

2017/10/31, DQPR-6618: There was data missing from 2017/10/06 at 17:00 UTC to 2017/10/08 at 20:07 UTC. The missing files were processed and collected. Joshua King added that he is now not seeing data from the 2017/10/12 - 10/15 period. The most recent DQPR status is "open - requires action."

AOS --- NEPH --- Operational.

2017/12/01, DQPR-6681: Janek Uin has an assignment to write DQR D171201.4 on the Impactor datastreams. This DQR would be for documenting the problem despite good data quality. The most recent DQPR status is "in progress - assignments."

2017/11/22, DQPR-6681: Since 2017/08/29 at 22:07 UTC, the 1-um switch on the Impactor is not working when the Impactor goes to the 1 um position. So the 'read' signal is reporting 3 (indeterminate) in this position. We have verified that the Impactor is working correctly. The mentor was contacted and will work with Operations to fix the signal. This affects processing for PSAP, CAPS and Nephelometer. The mentor (Uin) should close this DQPR once fixed. Janek commented that the limit switch was misaligned, and this was fixed. This issue affected only the impactor position reading, and the impactor was switching properly. He is not sure if the limit switch readings are ingested, and asks what the best course of action is for filing a DQR. The most recent DQPR status is "open - requires action."

AOS --- IMPACTOR --- Operational.

AOS --- Ozone --- Operational.

AOS --- PSAP --- Operational. Pentras was Shut Down for the Winter.

2017/11/22, DQPR-6682: Since 2017/08/29 at 22:07 UTC, the 1-um switch on the Impactor is not working when the Impactor goes to the 1 um position. So the 'read' signal is reporting 3 (indeterminate) in this position. We have verified that the Impactor is working correctly. The mentor was contacted and will work with Operations to fix the signal. This affects processing for PSAP, CAPS and Nephelometer. The mentor (Uin) should close this DQPR once fixed. The most recent DQPR status is "open - requires action."

AOS --- UHSAS --- Operational.

AOS --- IMPACTOR --- Operational.

AOS --- CCN --- Not Operational.

Precip --- MASC --- Not Operational. MASC Installed but the Computer Cannot Yet Be Remotely Accessed. The Software Has Not Been Confirmed To Be Running.

Precip --- PIP --- Operational.

Precip --- LPM --- Operational.

Precip --- GEONOR --- Operational.

Precip --- SRS --- Operational.

Other --- AERI --- Operational.

Other --- CIMEL --- Not Operational.

Other --- DataHawk Unmanned Aerial System --- Operational, not a full time instrument.

Other --- TBS --- Operational.

IOP --- MASC --- Operational.

Barrow

INFORMAL NSA INSTRUMENT STATUS REPORT FOR November 22 - December 01, 2017

BRIEF STATUS OF INSTRUMENTS IN BARROW (C1) AS OF 2017/12/01:

Facilities	Operational
Data Systems	Operational
Vehicles	Operational
Desktop Computers	Operational
SKYRAD - SKY Radiometer on Stand for Downwelling	Operational
MFRSR - Multifilter Rotating Shadowband Radiometer	Not Operational
NIMFR - Normal Incidence Multifilter Radiometer	Not Operational
GNDRAD - Ground Radiometer on Stand for Upwelling	Operational

MFR10m - Multifilter Radiometer at 10m height	Not Operational
MET - Surface & Tower Meteorological Instruments	Operational
AMC - Soil, up/downwelling radiation measurements	Operational
ECOR-twr - Eddy Correlation Flux System	Operational
MWR - Microwave Radiometer	Operational
MWRP - Microwave Radiometer Profiler	Operational
MWRHF - Microwave Radiometer High Frequency	Operational
GVR - G-band Vapor Radiometer	Not Operational
GVRP - G-band Vapor Radiometer Profiler	Not Operational
HSRL - High Spectral Resolution Lidar	Operational
MPL - Micropulse Lidar	Partly Operational
CELL - Vaisala Ceilometer	Operational
DL - Doppler LIDAR	Operational
KAZR - Ka ARM Zenith Radar	Operational as per warno.arm.gov
KaWSACR - Ka-Band Scanning ARM Cloud Radar	Not Operational as per warno.arm.gov
XSAPR - X-Band Scanning ARM Precipitation Radar	Not Operational as per warno.arm.gov
BBSS (Autosonde) - Balloon Borne Sounding System	Operational
AOS - Aerosol Observing System	Operational
CLAP - Continuous Light Absorption Photometer	Operational
CPC - Condensation Particle Counter	Operational
NEPH - Nephelometer	Operational
IMPACTOR - AOS Impactor	Operational
TSI - Total Sky Imager	Not Operational
TOWERCAM - 40m tower camera	Operational
Great White Camera	Operational
LPM - Laser Precipitation Monitor	Partly Operational
SRS - Snow Depth Sensor	Operational
AERI - Atmospheric Emitted Radiance Interferometer	Operational
CIMEL - Cimel Sunphotometer	Not Operational

* Barrow Instruments in Detail: *

INFRASTRUCTURE --- Facilities --- Operational.

INFRASTRUCTURE --- Data Systems --- Operational.

INFRASTRUCTURE --- Vehicles --- Operational.

INFRASTRUCTURE --- Desktop Computers --- Operational.

SKYRAD --- SKYRAD General --- Operational.

SKYRAD --- IRT --- Operational.

SKYRAD --- PIR 1 Shaded --- Operational.

SKYRAD --- PIR 2 Shaded --- Operational.

SKYRAD --- SOLAR Tracker --- Operational.

SKYRAD --- B&W diffuse --- Operational.

2017/11/30, CM-2017-NSA-VSN-4477: There was frost on the B&W dome, so site ops cleaned it off at 23:05 UTC.

SKYRAD --- NIP --- Operational.

SKYRAD --- PSPg --- Operational.

SKYRAD --- MFRSR --- Not operational. Removed for the Season.

2017/12/01, DQPR-6694: On 2017/11/17 at 18:02 UTC the instrument was removed for the winter and data unavailability begins.

The most recent DQPR status is "waiting - for spares."

2017/12/01, DQPR-6297: christian Herrera has an assignment to write DQR D171201.12 about previous periods of shading. The

most recent DQPR status is "in progress - assignments."

SKYRAD --- NIMFR --- Not Operational. Removed for the Season.

TIPTWR --- GNDRAD general --- Operational.

2017/11/22, CM-2017-NSA-VSN-4474: The tip tower was brought down for the winter removal of the GNDMFR. While the tower was down, Jimmy checked that all the ventilator fans were working and cleaned the optics.

TIPTWR --- MFR10m --- Not Operational.

2017/11/22, CM-2017-NSA-VSN-4474/4475: It was the end of the season for the MFR10m. The board (BD15) and head (EA01) were removed.

TIPTWR --- PIRgnd --- Operational.
 TIPTWR --- IRTgnd --- Operational.
 TIPTWR --- PSPgnd --- Operational.
 MET --- METTOWER general --- Operational.
 MET --- CMH --- Operational.
 MET --- Barometer --- Operational.
 MET --- TEMPERATURE / HUMIDITY --- Operational.
 MET --- WIND INSTRUMENTS (SONIC) --- Operational.
 MET --- PWD --- Operational.
 MET --- AMC --- Operational.
 2017/10/20, DQPR-6589: A lack of sufficient factory calibrations is causing missing and flatlined values in the volumetric water content fields since 2017/06/18. An example plot is posted on the DQPR. The most recent DQPR status is "open – requires action."
 2017/10/12, DQPR-6207: Andrew Moyes can now transfer all raw data files for the entire record to the following directory for reprocessing: /data/home/moyes/NSA_AMC_C1. The most recent DQPR status is "in progress - assignments."
 2017/09/29, DQPR-6207: Ken Reichl formatted data to unify the entire record with the same raw data format. All data for the entire record (multiple raw and b1 data) will be copied to a DMF research system computer, but he is awaiting to gain access to build a directory to put raw data in. A BCR will be submitted to create a new DOD version in order to change all temperature valid_min from -10 degC to -40 degC. Once that has been released to production, the reprocessing should be done via the attached DQR. Andrew Moyes will be taking over this process as the mentor, as Ken will be leaving LBNL and ARM as of 9/29/2017. The most recent DQPR status is "in progress - assignments."
 2017/06/19, DQPR-6207: Raw data needs to be prepared and shared with the developer. Over the years, some sensor cables have been switched around with inputs to the logger. The most recent DQPR status is "in progress - assignments."
 2016/10/10, DQPR-5694: Joshua King adds that vmc from sensor 4 was missing from 14:30 UTC 2016/07/12- 15:30 UTC 2016/09/25. Since returning 2016/09/25, vmc has been decreasing to below 0.3. He is asking mentors if they have thoughts on what is causing this behavior. An attached image can be found on the DQPR page. IM Ken Reichl responds that this is an issue outlined in DQPR-4793 for the analogous site, OLI. The instrument reports soil data as 9999999, or a non-numerical character (for data SGP) for soil systems. The AMC systems may report missing data during warm seasons for instruments that are not sufficiently calibrated. The OLI datastream has an open-ended DQR D151023.3. Ken asks if he should make one for the NSA data as well, and is the DQR system the best way to characterize this issue?
 ECOR --- ECOR-twr --- Operational. Licor 7700 Removed for Winter.
 2017/11/22, CM-2017-NSA-VSN-4473: The mentor requested that operators pull the Licor 7700 (TG1-0182/WD 79502) for shipment.
 MW RADIOMETERS --- MWR --- Operational.
 2017/11/22, CM-2017-NSA-VSN-4472: The MWR software was found to have crashed, so it was restarted at 18:25 UTC on 2017/11/22.
 MW RADIOMETERS --- MWRP --- Operational.
 2017/11/22, CM-2017-NSA-VSN-4471: The instrument was calibrated with LN2 from 11/20 at 18:20 - 11/20 at 20:25 UTC.
 MW RADIOMETERS --- MWRHF --- Operational (External Noise Interference).
 2016/09/30, DQPR-4165: The 150 GHz channel was showing high noise levels probably because of an external source of interference. Adam inquires if there is a path forward to solve the interference issues? The current DQPR status is "in progress-assignments", and it is open-ended. DQRs D140610.1 and D160426.3 have been reviewed and accepted by the PRB.
 MW RADIOMETERS --- GVR --- Not Operational. Instrument Crate Received and Will be Installed Next Week.
 2017/12/01, DQPR-6274: Walter added that the instrument has been received, but due to delays in shipping, weather, and holidays, site ops has not yet had a chance to install it.
 MW RADIOMETERS --- GVRP --- Not Operational. Work is Being Done on the Software.
 2017/11/18, DQPR-6647: Radiometrics has requested to remotely access the computer. Once they get authorization they will check why we can't load the interface. The most recent DQPR status is "open - requires action."
 2017/11/09, DQPR-6647: All variables were not available intermittently starting 2017/10/29, followed by consistent data loss on 2017/11/04. Tim Grove was working on ARM coring the computer on November 1st - 2nd. However, the primary issue was the software crashing. Something must have gotten corrupted last week. Maria is working with Radiometrics now to figure out how to keep the software running properly and to trigger auto restarts. The "vizmet" interface should always run in the background on the computer and will take care of daily starts. Once the program starts operating regularly, the end date will need to be updated. The most recent DQPR status is "open - requires action."
 LIDAR --- HSRL --- Operational.
 LIDAR --- MPL --- Partly Operational. Computer Lost Network Access.
 2017/12/01, CM-2017-NSA-VSN-4480: Walter re-attempted the Dark Count calibration with the mentor. The computer was rebooted, the program was started, and he went through the mentor's procedure list step by step. However, the controller keeps turning the shutter and LDD back on. Now the computer has a network connectivity issue and time on the software is flashing

red. Walter restored the computer and instrument to normal Operation with the mentor's help. He will await help with the network issue and further instructions for completing the Dark Count calibration on Monday.

2017/12/01, CM-2017-NSA-VSN-4479: Site ops attempted to complete the Dcount calibration. However, the controller automatically turned the shutter and LDD back on. Walter is in communications with the mentor to figure out how to stop the controller from turning these back on. The system is not currently operational.

2017/12/01, CM-2017-NSA-VSN-4478: It was time for a MPL calibration, so site ops stopped the instrument, disconnected the network cable, and ran the Afterpulse and Dark Count calibrations. They then stopped the calibration, and then renamed, saved, and moved the file. The network was then connected once more and normal operations were resumed.

2017/11/22, DQPR-6590: Paytsar Muradyan submitted DQR D171103.8 on missing data. The most recent DQPR status is "in progress - assignments."

2017/10/03, DQPR-6328: Donna Flynn posted some responses to Rich's analysis of data quality. Adam posted a figure of 'Afterpulse Comparison Polarization failing/working for ENA MPL.'

2017/09/29, DQPR-6328: Donna Flynn submitted a summary of her findings of the MPL system at NSA. Richard Coulter added that afterwards that it is not likely that applying the after pulse correction created negative backscatter, but it is more likely the background value that is causing any negative values. The SNR is a highly variable variable, affected by multiple elements, and is and not likely to be useful for system evaluation. The afterpulse measurement process is well established and works well when done properly. More discussion is needed, and the details can be found on the DQPR page. The most recent DQPR status is "waiting - for spares."

2017/09/13, DQPR-6328: There are no spare MPLs right now. We are planning on sending the NSA MPL for repairs once we have a replacement (probably next month). So Paytsar's suggestion at this point is to wait until the replacement gets to NSA, then we will be able to properly identify the affected periods. The most recent DQPR status is "waiting - for spares."

2017/08/02, DQPR-6328: DQR D170802.9 has been submitted for AWR.M1. When start and end dates for NSA.C1 problems are identified, this DQR can be used as a template. The most recent DQPR status is "open - requires action."

2017/07/07, DQPR-6328: During the investigation into the MPLCMASK problem, it was determined that there are potential problems with the NSA C1 and AWR M1 polarizations. From Donna Flynn: The AWR.M1 instrument polarization is off. The values for the linear depolarization ratio are too high. If you compare the water clouds at both AWR.S1 (reasonable values) and AWR.M1(high) on 20151210, this is evident. Additionally, the NSA.C1 data looks suspicious. I have only looked at a few days, but I have found poor agreement with HSRL and clear sky profiles when compared to Rayleigh, which suggests either an overly strong afterpulse or a collimation problem. The most recent DQPR status is "open - requires action."

LIDAR --- CEIL --- Operational.

LIDAR --- Doppler LIDAR --- Operational.

RADAR --- KAZR --- Operational as per warno.arm.gov.

2017/06/12, warno.arm.gov: The RDS1 power supply was replaced and the signal processor is operational. The system will be taken out for maintenance for a short time to replace a fan.

RADAR --- KaWSACR --- Not Operational as per warno.arm.gov.

2017/11/13, DQPR-4041: Adam asked Nitin or Karen for information on the start/end times of this issue so that this DQPR can be closed. The most recent DQPR status is "waiting - for spares."

2016/03/12, DQPR-4041: After much coordination with the pedestal manufacturer and while working with the instrument mentors, the azimuth DSA was re-programmed. Once a reprogrammed Azimuth DSA was installed and verified the Elevation DSA was also found to be faulty. It was replaced with another unit and the system now accepts azimuth and elevation commands. The most recent DQPR status is "waiting- for spares."

RADAR --- XSAPR --- Not Operational as per warno.arm.gov.

2016/08/04, DQPR-4841: The elevation servo amplifier failed, the radar can not scan in elevation. The radar will be upgraded sometime, and will be turned off until then. A DQR was submitted and reviewed by PRB. The DQPR status is "in progress" due to it being open-ended. Adam Theisen's DQR D160719.1 has been reviewed and accepted by the PRB.

Sonde --- BBSS (Autosonde) --- Operational.

2017/11/27, DQPR-6627: Donna responded that she is not sure how this was done in the past, but recommended that the b1 level S01 file be deleted since it has been renamed. The most recent DQPR status is "open - requires action."

2017/11/17, DQPR-6627: Adam asked Donna/Ken if the b1 level S01 file (nsasondewnpnS01.b1.20171031.174100.cdf) can be deleted now that it's been renamed.

2017/11/10, DQPR-6627: There were communications issues with Autosonde NSA C1 that required the scheduled launch to be performed using NSA S01. Could this file be renamed from S01 to C1 so that it shows up with the regular launch data? Launch date/time: 10/31/2017 at 1741 GMT. Only this one launch was affected.

AOS --- General --- Operational.

AOS --- AETH --- Operational.

AOS --- CLAP --- Operational.

AOS --- CPC --- Operational.

AOS --- NEPH --- Operational.

AOS --- IMPACTOR --- Operational.

IMG --- TSI --- Not Operational.
IMG --- TOWERCAM --- Operational.
IMG --- Great White Camera --- Operational.
Precip --- LPM --- Partly Operational. No Ingest.
2017/12/01, CM-2017-NSA-VSN-4476: Walter received and installed the replacement fuse (a secondary heater fuse) within the LPM at 23:05 UTC.
Precip --- SRS --- Operational.
Other --- AERI --- Operational.
Other --- CIMEL --- Not Operational.

5 North Slope Facilities

AMF3

Current and Upcoming Site Visits

Al Bendure, Bruce Edwardson-SNL	12/11-22	turbine power shelter upgrades
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Current and Upcoming IOPs

De-Icing Comparison Experiment (DICE)

AXIS camera was relocated for Chuck Longs De-Icing Comparison Experiment (DICE).

This will enable Chuck to observe the AMF3 radiometers. Martin Stuefer setup a script to take a photo every 10 minutes they can be viewed at: http://nanuna.gi.alaska.edu/media/cam/oli_psp/
http://nanuna.gi.alaska.edu/media/cam/oli_skyrad/

Snowflake Settling Speed Experiment: MASC (upcoming) Timothy Garrett- University of Utah

Site and Safety Issues

N/A

Unmet Needs

We are running on leased diesel generators while other options are explored.

Site News



Two new shelters were added to house the site generators and protect them from the elements.



New 5000-gallon fuel tank.

Site Staffing

N/A

Tethered Balloon Operations

1. TBS SLWC and DTS data from the October 2017 campaign analyzed.
2. The TBS winch trailer shipped to Albuquerque from Oliktok at the conclusion of the October TBS campaign in order to conduct upgrades and maintenance over the winter.



Figure 1: Winch trailer as it was initially configured upon arrival in Albuquerque

- a. First, we removed the two electronics boxes mounted of the front of the trailer. Upon removal, we found most of the support brackets for the boxes had cracked.



Figure 2: Cracked electronic box supports

- b. The balloon support arms were removed next and then the generator. Upon removing the support arms, we found the arms to be flimsy and their mounting locations to be undesirable. A stress crack was found under one of the mounting locations proving the location was inadequate.



Figure 3: Stress crack under balloon arm mounting location

- c. The generator was relocated to the front of the trailer and the winch and back helium bottle storage were removed.



Figure 4: Trailer with generator in front and back helium bottle storage removed

- d. We disassembled the old winch and found many issues. The level wind housing had been wearing against the shaft due to inadequate support from the roller mount. This caused extreme wear on the housing as well as aluminum shavings to be spread across the level wind shaft. All the grease and shavings were cleaned off the old winch as well as identifying parts that needed to be replaced. The support shaft was changed to utilize the winch drive to spin the shaft preventing binding in the linear bearing with the new level wind roller. This linear bearing will serve to prevent premature wear of the level wind housing during future operation. The gearing of the pawl motion was also improved so it will evenly lay the tether across the entirety of the drum which will save space and potentially allow a longer tether to be used.

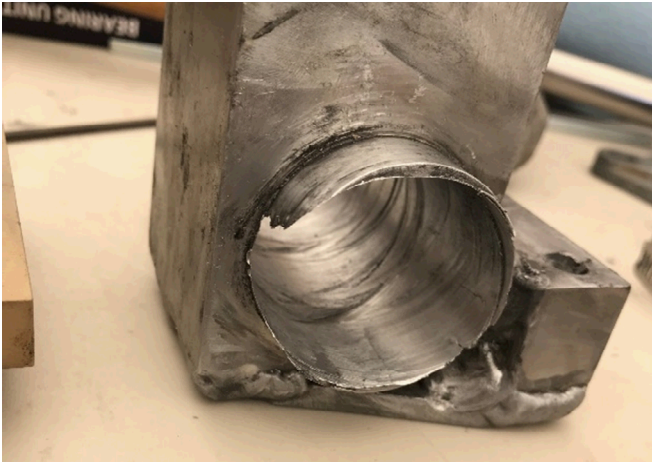


Figure 5: Extreme wear of existing winch level wind housing

A 3D SolidWorks model of our winch was developed. Using the model, a new design for the level wind winch mechanism was created. From the model, a rough prototype of the design was created which will be tested with a tether under tension. The goal of the new level wind design is to prevent damage to the tether when the tether deviates over 60° from being parallel to the winch (cross wind to trailer) or a severe tether angle occurs in cases of low lift or high winds.

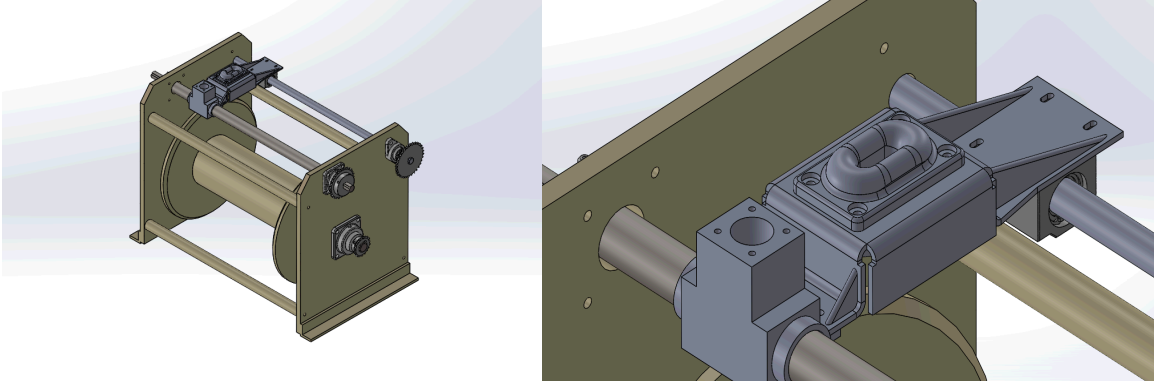


Figure 6: Model of new level wind design on winch

Barrow

Current and Upcoming Site Visits

N/A

Current and Upcoming IOPs

De-Icing Comparison Experiment (DICE)

An AXIS camera was placed for Chuck Longs De-Icing Comparison Experiment (DICE).

This will enable Chuck to observe the Barrow radiometers. Martin Stuefer setup a script to take a photo every 10 minutes they can be viewed at: http://nanuna.gi.alaska.edu/media/cam/nsa_psp/
http://nanuna.gi.alaska.edu/media/cam/nsa_skyrad/

SNPP/NPOESS Ground Truth Sonde Launch, Phase 5 – Started Oct 1, 2016

Seismic Probes for NSF– POP Ends, Oct 31, 2018

OYES-Electric Field Study, Texas A&M, Started June 2017

Global Navigation Satellite System (GNSS) – Started July 2017

NSA Precipitation Instrumentation – Moved to tower location August 2017

Global Navigation Satellite System (GNSS) – started July 2017

Site and Safety Issues

N/A

Unmet Needs

N/A

Site News

On November 22, Walter and Jimmy worked with Maria Cadeddu to run calibrations on the MWRP & GVRP.

Site Staffing

Dan Lucero, Barrow site manager, announced his upcoming retirement, his last day in the office will be December 22.

Distribution

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